

ABSTRACT OF THE DISCLOSURE

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The present invention provides a silicon carbide-based, porous, lightweight, heat-resistant material which can retain the shape of a porous structural body formed of, for example, corrugated cardboard and provides a manufacturing method therefor. The silicon carbide-based, porous, lightweight material is produced by a process including the steps of infiltrating a slurry composed of a resin and powdered silicon into a porous structural body having a framework formed of paper such as corrugated cardboard, wood, a woven cloth, a non-woven cloth, a plastic, or the like; carbonizing the infiltrated porous structural body at 900 to 1,350°C in an evacuated or an inert atmosphere; and performing reaction-bonding for the obtained structural body at 1,350°C or more in an evacuated or an inert atmosphere. By the reaction-bonding, silicon carbide having superior molten silicon wettability and open pores caused by the reaction during which the reaction volume decreases are simultaneously formed. In addition, the porous structural body thus obtained is infiltrated with molten silicon at 1,300 to 1,800°C in an evacuated or an inert atmosphere, whereby the silicon carbide-based, porous, lightweight, heat-resistant material is formed.